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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/072,165

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Terry C. Coughlin JR.

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08/20/2004

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EXAMINER

CHANG, DANIEL D

ART UNIT

PAPER NUMBER

2819

DATE MAILED: 08/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/072,165	Applicant(s) COUGHLIN ET AL.	
	Examiner Daniel D. Chang	Art Unit 2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 July 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Acknowledgement

Receipt is acknowledged of the Amendment filed July 6, 2004.

Drawings

The proposed drawing correction is objected to as failing to comply with 37 CFR 1.84(i) & 37 CFR 1.84(p) because lines, numbers & letters are not uniformly thick and well defined, clean, durable, and black (poor line quality). Also, some characters are too small. It is recommended that the corrections be made in the Figs. 2A and 2B of the drawing filed February 7, 2002.

Also, the drawings are objected to because the label, "16" appears to be --12-- in Fig. 3; and the label, "PVDRIVE" appears to be --PNDRIVE-- in Fig. 2B. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any

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required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: On page 3, line 8, "Figure 2 is" should be changed to --Figures 2, 2A, and 2B are--.

Also, on page 4, line 1, "controller" should be changed to --controlled-- and "16" should be changed to --12-- because Fig. 3 is not a drawing of a controller 16, it is a drawing of a controlled I/O cell. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Lamphier et al. (US 5,666,078).

Regarding claim 9, Lamphier discloses, in Corrected Fig. 1, a circuit comprising:

an input/output cell (60) having a varying input/output impedance and including a given set of resistance devices (64, Z, 2Z, 4Z, 8Z), and

a control circuit (20, 30) for controlling the impedance of the input/output cell, the control circuit including

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a node (VZQ 31) having a variable voltage;
a copy (24, X, 2X, 4X, 8X) of said given set of resistance devices;
a comparator (30) for comparing the voltage of the node to a reference voltage (VEVAL 32);

means for adjusting (72 in Fig. 2) the voltage of the node during a defined period and according to a defined procedure, including means for activating (A0, A1, A2, A3 in Fig. 2) a number of the resistance devices of the control circuit during said defined period to adjust the voltage of the node until the voltage of the node becomes within a given range of the reference voltage;

digital generator (76, 78, 82 in Fig. 2) for generating a digital signal representing the number of resistance devices activated during said defined period; and

means for transmitting (80 in Fig. 2) the digital signal to the input/output cell to adjust the input/output impedance (60).

As for the recitation, "an application specific integrated circuit", it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Regarding claim 10, Lamphier discloses, in Corrected Fig. 1, that the digital generator increases a count value (4 Bit Up/Down Counter 72) during said defined period; and the transmitting means (Impedance Update Registers 80) transmits said count value to the input/output cell after the defined period (K-Clock).

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Regarding claim 11, Lamphier discloses, in Corrected Fig. 1, that the adjusting means includes:

a series of transistors (24, X, 2X, 4X, 8X) for adjusting the voltage of the node; and means for using the count value (74 in Fig. 2) to activate said transistor in a given order to adjust the voltage of the node.

Regarding claim 12, Lamphier discloses, in Corrected Fig. 1, that the input/output cell includes a first set of transistors (64, Z, 2Z, 4Z, 8Z) for adjusting the input/output impedance;

the circuit further includes a second set of transistors (24, X, 2X, 4X, 8X) for adjusting the voltage of the node;

each of the transistors of said second set is associated (by the same 4 bits from the Counter 72) with one of the transistors in said first set;

the adjusting means (72) includes means for activating (74 and A0, A1, A2, A3) a subset of the second set of transistors to adjust the voltage of said node; and

the transmitting means (80) includes means for transmitting the digital signal (L0, L1, L2, L3) to the input/output cell to activate transistors of the first set of transistors that are associated with said subset of the second set of transistors.

Regarding claim 13, Lamphier discloses, in Corrected Fig. 1, that the input/output impedance of the input/output cell varies in a defined manner as a function of a given set of variables (col. 1, lines 21+); and

the variable voltage of said node also varies in said defined manner as a function of said given set of variables (col. 2, lines 11+).

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Regarding claim 14, Lamphier discloses, in Corrected Fig. 1, that the circuit further includes a reference resistor (External RQ 22) for establishing the variable voltage at said node; and

said resistor (22) has an impedance that varies in said defined manner as a function of said given set of variables (col. 1, lines 21+; col. 2, lines 11+).

Regarding claim 15, Lamphier discloses, in Corrected Fig. 1, that adjusting means (72) includes:

means for increasing the voltage (by 4 bits A0-A3) of the node (VEVAL 32) in a first manner if the voltage of the node is less than the reference voltage; and

means for decreasing the voltage (by 4 bits A0-A3) of the node (VEVAL 32) in a second manner if the voltage of the node is more than the reference voltage (col. 2, lines 11+).

Regarding claim 16, as for the recitation, “a digital controller designed as a synthesized core or macro”, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Method claims 1-8 are essentially the same in scope as apparatus claims 9-16 and are rejected similarly.

Response to Arguments

Applicant's arguments filed July 6, 2004 have been fully considered but they are not persuasive.

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Applicant argues on page 12, that “Lamphier, et al. which was cited by Applicants in an Information Disclosure Statement file with this application, does not show or teach this ASIC architecture.” However, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Applicant further argues on page 13, that “independent Claims 1 and 9 clearly describe the above-discussed feature of the invention. Specifically, Claim 1, which is directed to a method of impedance control, positively sets forth the step of providing an application specific integrated circuit including an I/O cell, a reference cell, and a digital controller, and the claim goes on to describe how the reference cell and the digital controller are used to adjust the impedance of the I/O cell.”

“Similarly, Claim 9 is being amended so that the claim is now positively directed to “An application specific integrated circuit” including an I/O cell and a control circuit for controlling the impedance of the I/O cell. The claim further describes the elements of the control circuit, including a set of resistance devices, a comparator, and a digital generator, and describes how these elements cooperate to adjust the input/output impedance of the I/O cell.”

“The other reference of record have been reviewed, and it is believed that these other references, whether they are considered individually or in combination, are no more pertinent than Lamphier et al. In particular, none of these references disclose the way in which the present invention achieves an active-compensation of a programmable impedance I/O in an ASIC architecture.”

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However, Lamphier et al. discloses all the features of the claimed invention as discussed above including:

an I/O cell (60), a reference cell (20, 30), and a digital controller (40), as set forth in claim 1; and an I/O cell (60) and a control circuit (20, 30) including a set of resistance devices (24, X, 2X, 4X, 8X), a comparator (30), and a digital generator (76, 78, 82 in Fig. 2), as set forth in claim 9.

It is noted that, it is the claims that define the claimed invention, and it is claims, not specifications that are anticipated or unpatentable. *Constant v. Advanced Micro-Devices Inc.*, 7 USPQ2d 1064.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

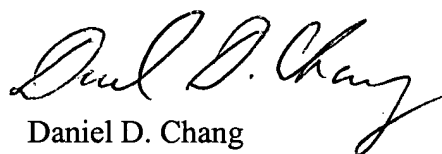
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel D. Chang whose telephone number is (571) 272-1801.

The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Tokar can be reached on (571) 272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Daniel D. Chang
Primary Examiner
Art Unit 2819

DC

DANIEL CHANG
PRIMARY EXAMINER